1634

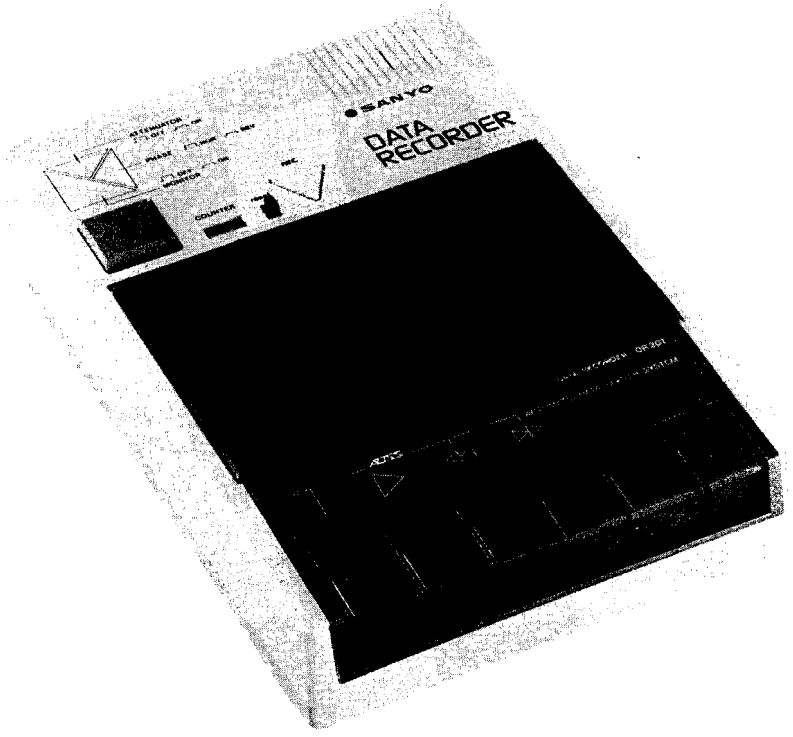
SERVICE MANUAL

SANYO

DATA RECORDER

DR201

EUROPE



142 344 20

SPECIFICATIONS

Power Soource	220V (50/60Hz)
Output Power	550mW (Max.)
Power Consumption	5W
Recording System	DC Bias
Erasing System	Magnet Erasing
Tape Speed	4.75cm
Wow & Flutter	0.25%, WRMS
Fast Forward Time	120sec. (with C-60)
Rewind Time	120sec. (with C-60)
Torque	
Playback	30 ~ 55g-cm
Fast Forward	More than 55g-cm
Rewind	More than 55g-cm
Frequency Response (Overall)	250Hz ~ 8,000Hz
Erase Ratio (Overall)	More than 40dB
Signal to Noise Ratio	More than 30dB
Crosstalk	
Track to Track	More than 50dB
Harmonic Distortion	Less than 10%
Hum & Noise	−28dBs
Terminal Impedance	
MIC.	4.7kΩ
Earphone	6Ω
Dimensions (Max.)	130(W) x 50(H) x 198(D)mm
Weight (without battery)	820g

−Specifications subject to change without notice.−

WM-11866

1634

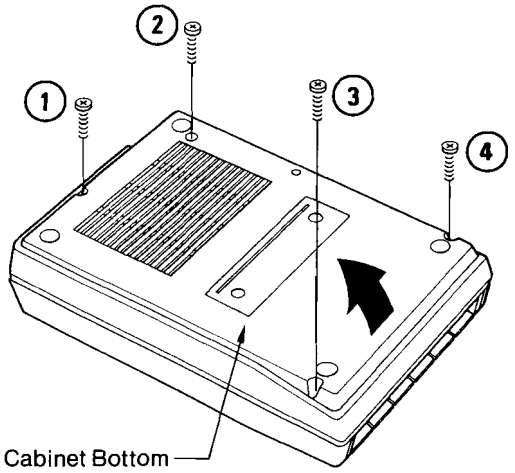
DISASSEMBLY INSTRUCTIONS

GENERAL REMARKS

- Before disassembling the unit, spread a soft rubber mat or a cloth on the work bench to avoid scratches and grease stains.
- Do not spread anything which is likely to cause static electricity because transistors and ICs may be easily damaged by it.
- Reassemble the unit, noting the kinds of screws and the soldering and arrangement of the leads. Refer to "Circuit Diagram and Exploded Views" for correct assembly.
- Before disassembling the unit, take out the cassette tape and the batteries.

CABINET BOTTOM REMOVAL

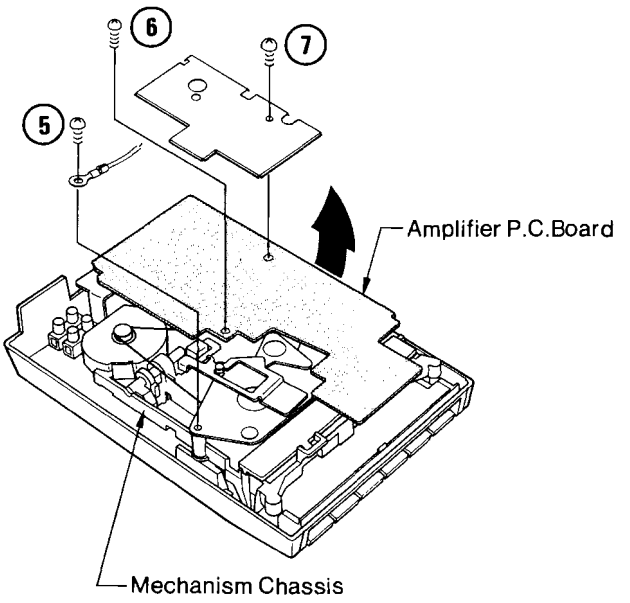
1. Remove the four screws (1 ~ 4) fastening the Cabinet Bottom.
2. Detach the Cabinet Bottom by lifting it in the direction of the arrow.



3. Reassemble in reverse order.

AMPLIFIER P.C.BOARD REMOVAL

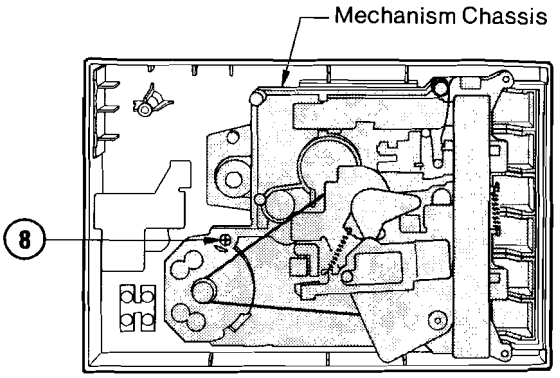
1. Detach the Cabinet Bottom by following the instructions for it.
2. Unsolder the following leads from the Amplifier P.C.Board.
   * Three leads (brown, pink and black) of the LED Indicator
   * Biue lead of the R/P Head
3. Remove the three screws (5 ~ 7) fastening the Amplifier P.C.Board and Lug.
4. Detach the Amplifier P.C.Board by lifting it in the direction of the arrow.



5. Reassemble in reverse order.

MECHANISM CHASSIS REMOVAL

1. Detach the Amplifier P.C.Board by following the instructions for it.
2. Remove the screw (8) and detach the Mechanism Chassis by lifting it from the Cabinet Top.



3. Reassemble in reverse order.

ADJUSTMENT PROCEDURES

GENERAL REMARKS

- Before the adjustments, wipe off stains on the tape contacting surfaces of the parts, the belt and pinch roller with a soft cloth soaked in alcohol. Trouble may occur because of oil and grease stains.
- Carefully handle the belt because grease easily attaches to it.
- Check the rubber-used parts, If the rubber has quality deterioration or scratch marks, replace the part with a new one.

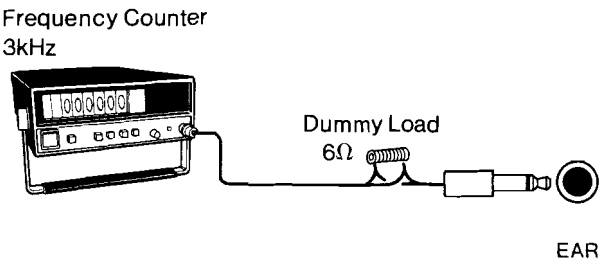
EQUIPMENT REQUIRED

- VTVM
- Frequency Counter
- Dummy Load (6Ω)
- Test Tapes
  - * 3kHz Test Tape (Example: TEAC MTT-111) for Tape Speed Adjustment
  - * 8kHz Test Tape (Example: TEAC MTT-113C) for Head Azimuth Adjustment
- Alignment Tool

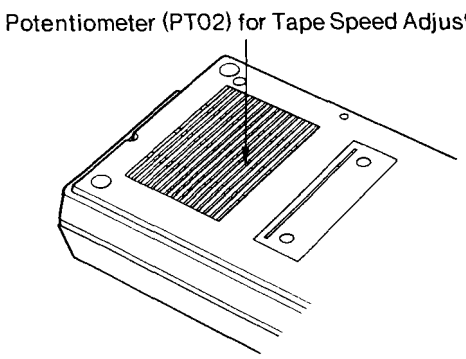
1. Before performing the adjustment, set the controls and switches as follows:
   - * ATTENUATOR Switch ..... OFF
   - * PHASE Switch ..... NOR
   - * MONITOR Switch ..... OFF

TAPE SPEED ADJUSTMENT

1. Connect a frequency counter to the earphone jack as illustrated and insert a 3kHz test tape (Example: TEAC MTT-111) into the cassette compartment.

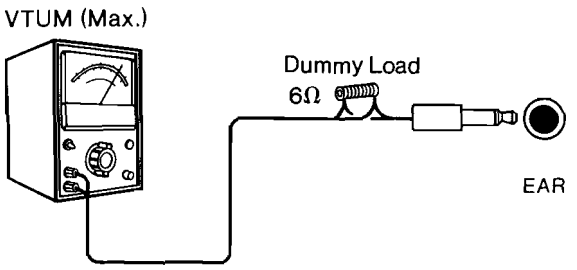


2. While playing back the test tape, adjust the potentiometer PT02 by turning it through the adjusting hole of the Cabinet Bottom with an alignment tool until the counter reads 3kHz.

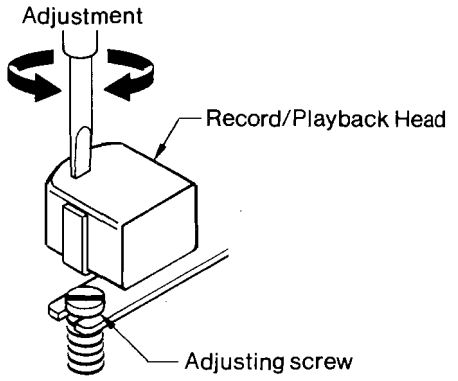


HEAD AZIMUTH ADJUSTMENT

1. Connect a VTVM to the earphone jack as illustrated and insert a 8kHz test tape (Example: TEAC MTT-113C) into the cassette compartment.



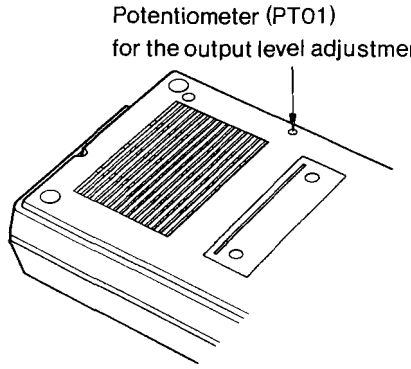
2. While playing back the test tape, turn the azimuth adjusting screw until the VTVM reads the maximum.



3. After the adjustment, secure the adjusting screw with paint or glue.

OUTPUT LEVEL ADJUSTMENT

The output level of this unit is adjusted to the average level of personal computers and program tapes produced in each company. If an error ocurrs during the load operation, adjust the potentiometer PT01 for the output level adjustment.



PARTS LIST

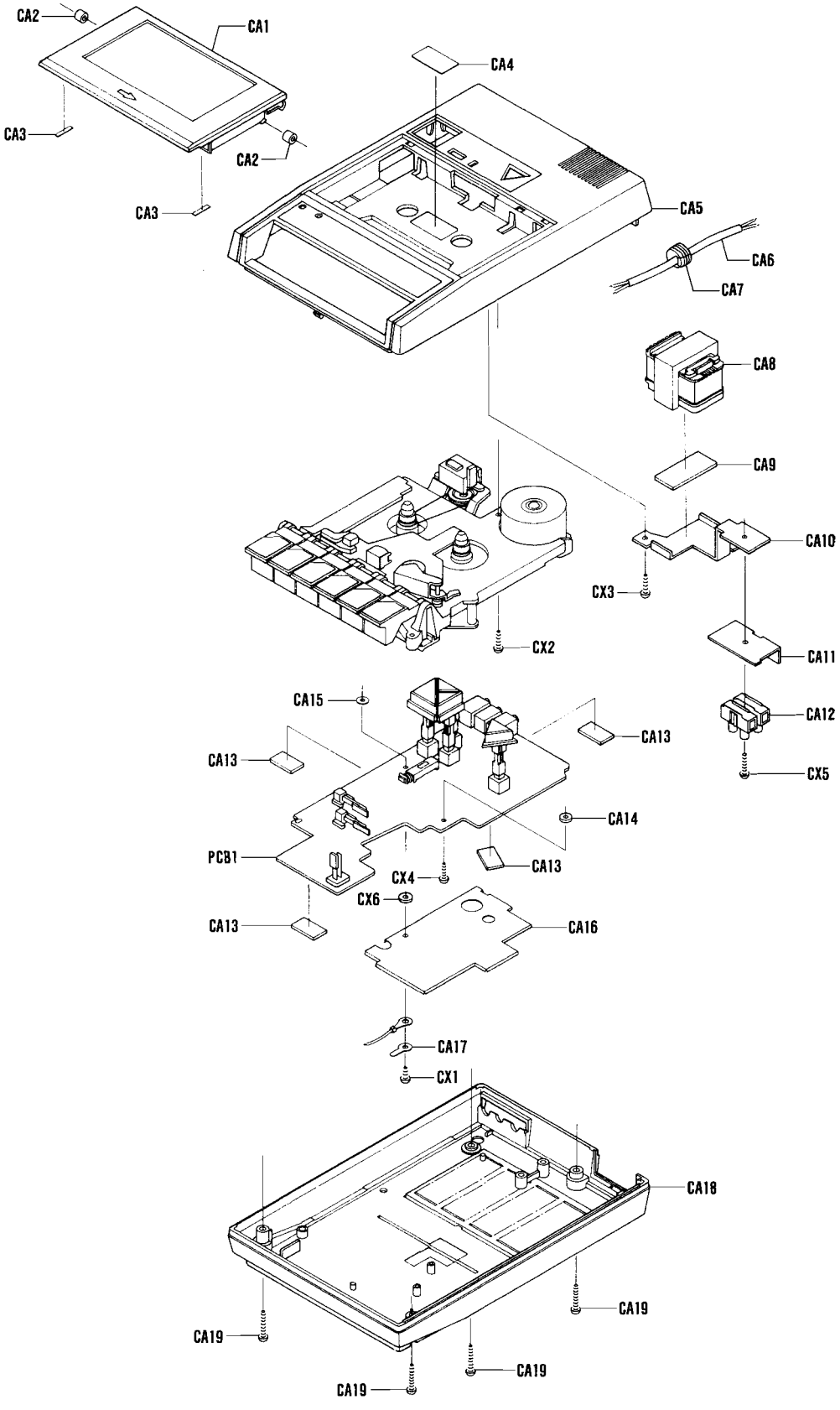
Ref. No.	Part No.	Description	Q'ty
	PACKAGE		
	141 6 1419 75801	Individual Carton	1
	141 6 1449 98400	Styrofoam Front	1
	141 6 1449 98500	Styroform Back	1
	141 6 2519 10025	Poly Cover 100 x 250	1
	141 6 2519 19390	Poly Cover	1
	141 6 4559 00100	Serial No. Sheet	3
	ACCESSORIES		
	142 6 4119 32125	Instruction Book	1
	CABINET		
	141 2 4729 07100	Wire Band	2
	141 2 1419 19201	Rating Plate	1
CA1	141 2 1249 42100	Lid Cassette	1
CA2	141 2 4619 06500	Tube	2
CA3	141 2 4419 07204	Cushion Lid Cassette	2
CA4	141 2 1519 24700	Reflector	1
CA5	141 0 1129 04000	Cabinet Top Assy	1
	Following Speaker and LED P.C.B. Assy [PCB2] are included in Cabinet Top.		
	4 1519 71970	Speaker (300Ω) [SP01]	1
CA6	⚠ 4 2439 70350	Cord Power	1
CA7	141 2 3899 10400	Heyco Bushing	1
CA8	⚠ 4 2519 73223	Power Trans [T01]	1
CA9	141 2 4469 35300	Cushion	1
CA10	141 2 3719 06500	Bracket Trans	1
CA11	141 2 4359 36900	Insulator	1
CA12	⚠ 4 2379 70560	Terminal	1
CA13	141 2 4469 17200	Cushion	4
CA14	141 2 4539 32700	Washer, M2.8x5.5x0.5	1
CA15	141 2 4539 19700	Washer	1
CA16	141 2 3229 49100	Plate Shield	1
CA17	141 2 4729 00200	Lug	1
CA18	141 2 1129 05800	Cabinet Bottom	1
CA19	141 2 4219 16000	Screw	4
CX1	102 3 1302 61011	Screw, Pan Hd. Tapping-1, +M2.6x10	1
CX2	102 3 1303 01611	Screw, Pan Hd. Tapping-1, +M3.0x16	1
CX3	103 3 1303 01411	Screw, Pan Hd. Tapping-2, +M3.0x14	1
CX4	143 3 1302 00811	Screw, Pan Hd. Tapping-B, +M2.0x8	1
CX5	143 3 1303 01811	Screw, Pan Hd. Tapping-B, +M3.0x18	1
CX6	110 3 9260 80152	Fiber Washer, M2.6x8.0x1.5	1
PCB1	141 0 1939 05130	Amplifier P.C.B. Assy	1

NOTE:
1. Parts order must contain Model Number, Part Number and Description.
2. Ordering quantity of screws and resistors must be multiple of 10 pcs.

PRODUCT SAFETY NOTICE

Each precaution in this manual should be followed during servicing. Components identified with the IEC symbol ⚠ in the parts list and the schematic diagram designate components in which safety can be of special significance. When replacing a component identified with ⚠, use only the replacement parts designated, or parts with the same ratings of resistance, wattage or voltage that are designated in the parts list in this manual.
Leakage-current or resistance measurements must be made to determine that exposed parts are acceptably insulated from the supply circuit before returning the product to the customer.

CABINET EXPLODED VIEW



MECHANISM PARTS LIST

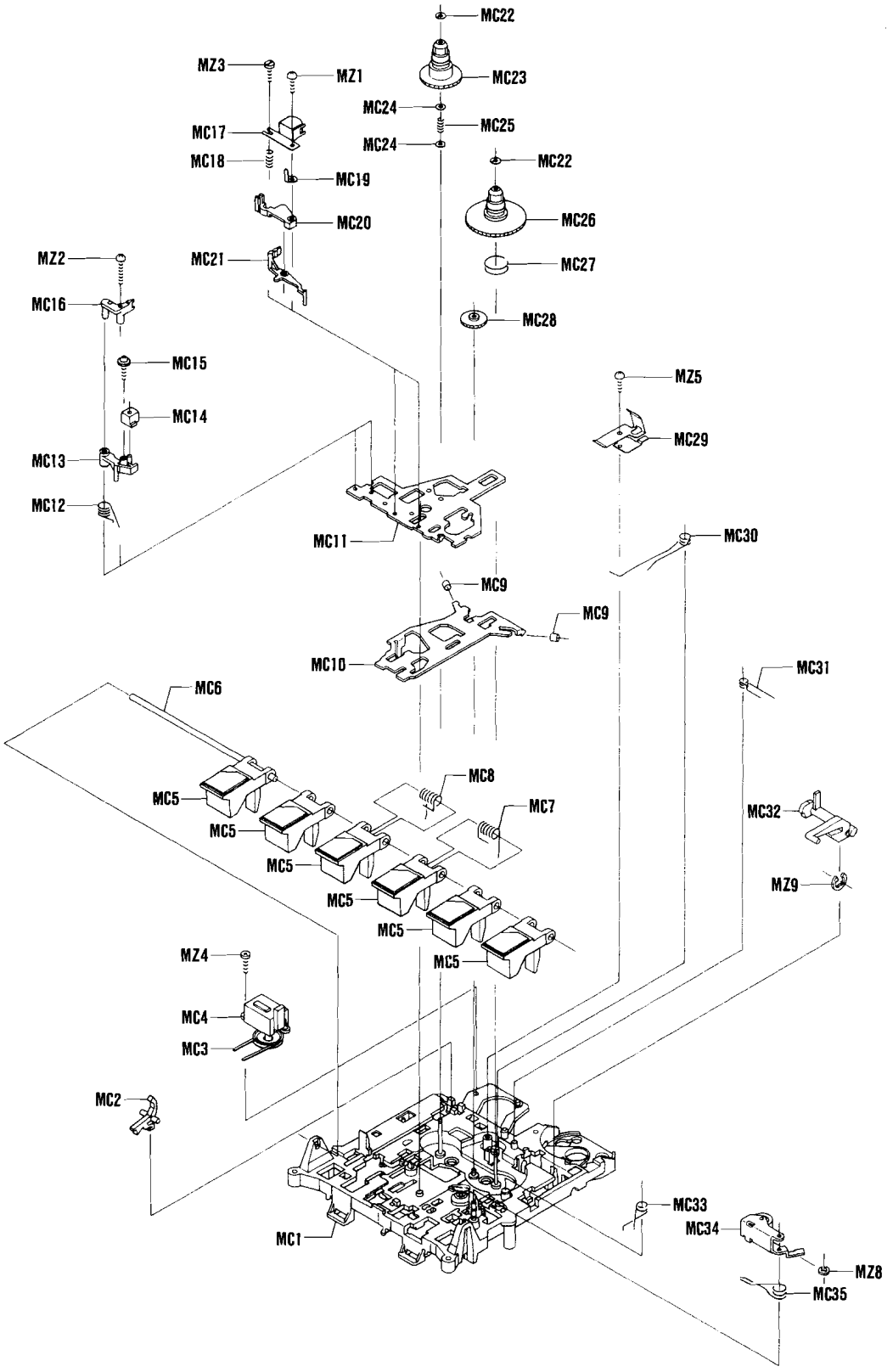
Ref. No.	Part No.	Description	Q'ty
	MECHANISM		
	141 2 4729 00200	Lug	1
MC1	141 0 3119 18903	Chassis Assy	1
MC2	141 2 8419 10400	Lever Interlock	1
MC3	141 2 5649 17900	Belt Counter	1
MC4	141 2 8119 00808	Counter	1
MC5	141 2 1659 31000	Button Select	6
MC6	141 2 6129 04700	Spdl Button	1
MC7	141 2 8519 96601	Spring Button FF	1
MC8	141 2 8519 96600	Spring Button REW	1
MC9	141 2 4459 25200	Cover Brake	2
MC10	141 2 7419 69500	Arm Brake	1
MC11	141 2 7319 43200	Base Slide	1
MC12	141 2 8519 97100	Spring Erase Head	1
MC13	141 2 7439 21600	Arm Erase Head	1
MC14	4 2429 71240	Erase Head [HD02]	1
MC15	141 2 4219 13200	Screw Washer	1
MC16	141 2 8219 28500	Guide Tape	1
MC17	4 2429 71590	R/P Head [HD01]	1
MC18	141 2 8519 47400	Spring Head	1
MC19	141 2 4729 01900	Lug	1
MC20	141 2 3529 27500	Spacer Head	1
MC21	141 2 7419 68800	Lever Sensor	1
MC22	141 2 4539 15700	Washer	2
MC23	141 0 5319 05401	Supply Reel Assy	1
MC24	141 2 4539 09400	Washer	3
MC25	141 2 8559 00100	Spring Supply	1
MC26	141 0 5319 05300	Take-up Reel Assy	1
MC27	141 2 8559 10200	Spring Reel Take	1
MC28	141 2 5519 36400	Gear FF	1
MC29	141 2 8539 41101	Spring Cassette	1
MC30	141 2 8519 96801	Spring Arm Idler	1
MC31	141 2 8519 96900	Spring Cassette-up	1
MC32	141 2 7419 68700	Lever Cassette-up	1
MC33	141 2 8519 97800	Spring Pause Lock	1
MC34	141 0 5419 03200	Pinchroller Assy	1
MC35	141 2 8519 97200	Spring Pinchroller	1
MC36	141 2 8519 97000	Spring Brake	1
MC37	141 2 7419 69400	Lever Shut OFF	1
MC38	141 2 8519 97600	Spring Lever ASO	1
MC39	141 2 7419 69000	Lever Pause	1
MC40	141 2 8519 51600	SPG Plate Lock	1
MC41	141 2 7419 68900	Lever Stop Eject	1
MC42	141 2 8519 39300	SPG Base Slide	1
MC43	141 2 5519 36601	Gear Capstan	1
MC44	141 2 8519 98200	Spring Flywheel	1
MC45	141 0 5219 07202	Flywheel Assy	1
MC46	141 2 5649 06400	Belt Capstan	1
MC47	141 2 4219 35800	Screw Arm Rewind	2
MC48	141 0 7419 41600	Holder Lever Assy	1
MC49	141 2 8549 26300	Spring APS	1
MC50	4 2649 70680	Solenoid (ADSS Solenoid) [SL01]	1
MC51	141 0 7419 41700	Lever APS Assy	1
MC52	141 0 3519 23700	Support FW Assy	1
MC53	141 2 7319 43100	Plate Lock	1
MC54	141 2 8519 56201	Spring	1
MC55	141 2 4539 15800	Washer	1
MC56	141 2 4539 12100	Washer Spindle	2
MC57	141 2 5519 36701	Idler Pulley Gear	1
MC58	141 0 7439 09302	Arm Idler Assy	1
MC59	141 2 8519 97900	Spring Base	1
MC60	141 2 7419 78000	Lever Play	1
MC61	141 2 7419 69200	Lever Record	1
MC62	141 2 8519 33000	SPG Lever Lock Index	1
MC63	141 0 7439 09200	Arm Take-up Assy	1
MC64	141 2 4539 05500	Washer	1
MC65	141 2 5519 36500	Gear Take-up	1
MC66	141 2 4219 22000	Screw	3
MC67	141 2 4459 25100	Cushion Motor	3
MC68	141 2 8519 97300	Spring Interlock	1
MC69	141 2 8519 98000	Spring Lever Play	1
MC70	141 2 8519 98100	Spring Lever REC	1
MC71	4 5279 71051	Motor [M01]	1
MC72	141 2 4539 17600	Washer	1
MZ1	101 3 1302 00611	Screw, Pan Hd., +M2.0x6	2
MZ2	101 3 1302 01211	Screw, Pan Hd., +M2.0x12	1
MZ3	101 3 3702 00611	Screw, Bind Hd., M2.0x6	1
MZ4	103 3 1702 00811	Screw, Bind Hd. Tapping-2, +M2.0x8	1
MZ5	143 3 1302 60811	Screw, Pan Hd. Tapping-B, +M2.6x8	1
MZ6	143 3 1702 60818	Screw, Bind Hd. Tapping-B, +M2.6x8	2
MZ7	112 3 1301 20012	E Ring, M1.2	1
MZ8	112 3 1302 00082	E Ring, M2.0	1
MZ9	112 3 1304 00082	E Ring, M4.0	1

NOTE:

1. Parts order must contain Model Number, Part Number and Description.
2. Ordering quantity of screws and resistors must be multiple of 10 pcs.

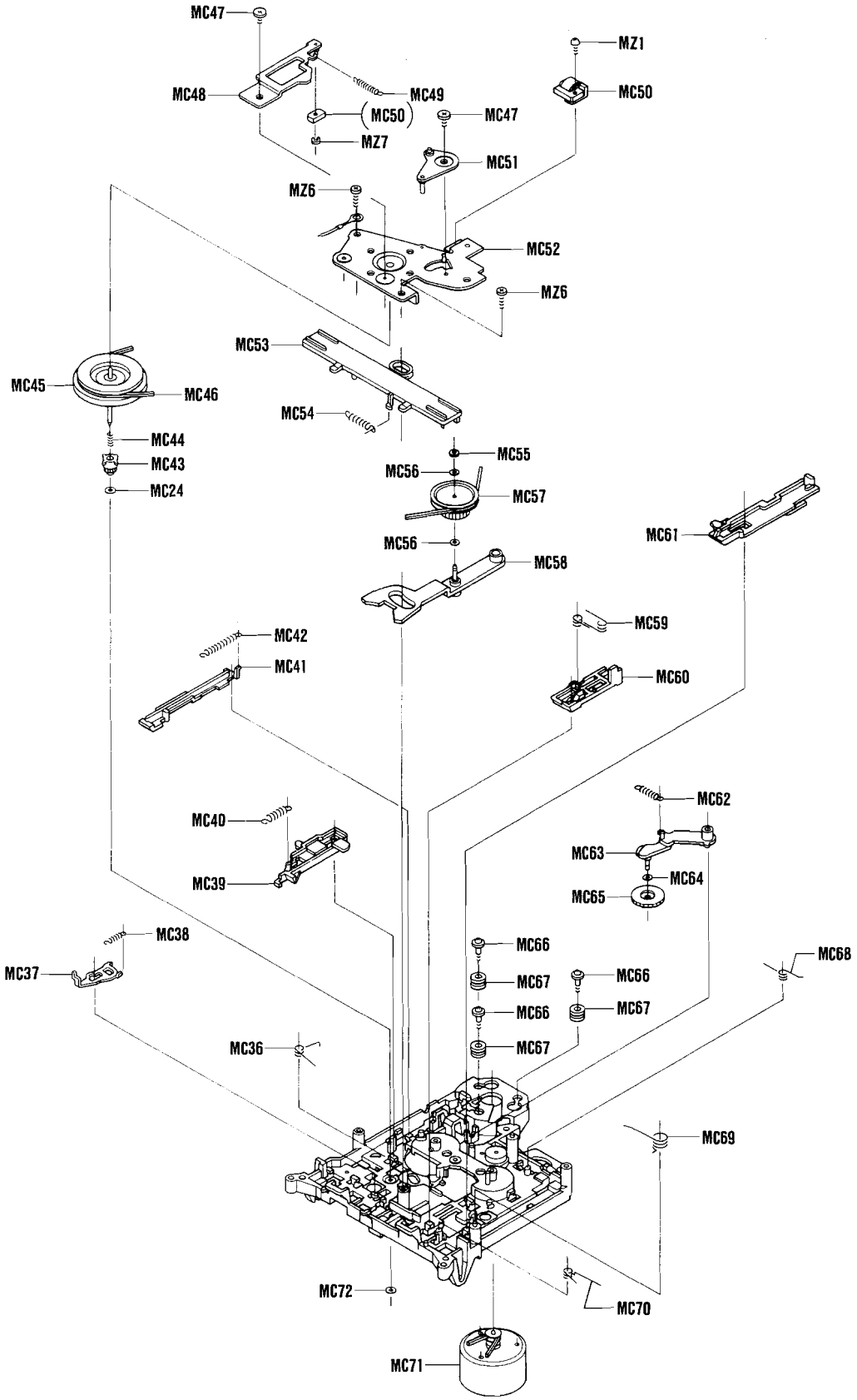
MECHANISM EXPLODED VIEW

(Chassis Top)



MECHANISM EXPLODED VIEW (Continued)

(Chassis Bottom)

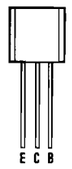
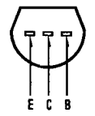


P.C.BOARD PARTS LIST

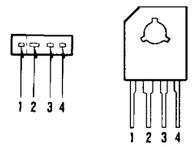
Ref. No.	Part No.	Description			Q'ty
	AMPLIFIER P.C.B. ASSY				
PCB1	141 0 1939 05130	Amplifier P.C.B. Assy			1
	141 2 1649 28600	Knob Mute			1
	141 2 1649 28700	Knob Monitor			1
	141 2 1649 28800	Knob Level			2
	141 2 6129 06500	Rod Connection			4
	141 2 8549 26400	Spring R/P Switch			1
SW01	4 2319 77370	Slide Switch (Record/Play)			1
SW02	4 2319 75840	Leaf Switch (F.F/REW)			1
SW03	4 2319 74620	Leaf Switch (Power)			1
SW04	4 2319 74620	Leaf Switch (Play)			1
SW05	4 2319 75331	Push Switch (ATT)			1
SW06	4 2319 75331	Push Switch (Phase)			1
SW07	4 2319 75331	Push Switch (Monitor)			1
SW08	4 2319 75330	Push Switch (REC Mute)			1
J01	4 2359 77120	Jack 3P 3.6 (Mike)			1
J02	4 2359 77110	Jack 3P 2.6 (Remote)			1
J03	4 2359 77120	Jack 3P 3.6 (Earphone)			1
L01	4 2539 70030	RF Choke			1
PT01	4 2229 73025	Potentiometer (B-10kΩ)			1
PT02	4 2229 72964	Potentiometer (B-2kΩ)			1
IC01	206 5 1084 14010	IC, LA 4140			1
IC02	206 5 1565 51111	IC, LA 5511 A			1
Q01	203 5 5251 57170	TR, 2SC 1571			1
Q02	203 5 5251 57170	TR, 2SC 1571			1
Q03	203 5 5100 53660	TR, 2SC 536			1
Q04	203 5 5100 53660	TR, 2SC 536			1
Q05	203 5 5100 53660	TR, 2SC 536			1
Q06	203 5 6980 59860	TR, 2SB 598			1
D01	202 5 9110 18820	Diode, 1S 188 FM 1			1
D02	202 5 1410 00110	GMA01-BT			1
D04	202 5 1410 00110	GMA01-BT			1
D05	202 5 2470 13540	Diode, DS 135			1
D06	202 5 2470 13540	Diode, DS 135			1
D07	202 5 1330 01010	Bridge Diode, DBB10			1
TH01	204 5 9000 00200	Thermistor, SDT-20			1
C01	CD2 2 4500 0001V	Electrolytic	0.22μF	50V	1
C02	CD2 2 5500 0002V	Electrolytic	2.2μF	50V	1
C03	CD4 7 5100 0001V	Electrolytic	4.7μF	10V	1
C04	CC1 5 2500 KE00C	Ceramic	0.0015μF	50V ±10%	1
C05	CD2 2 7100 0001V	Electrolytic	220μF	10V	1
C06	CD4 7 6100 0002V	Electrolytic	47μF	10V	1
C07	CD4 7 5500 0002V	Electrolytic	4.7μF	50V	1
C08	CC1 8 2500 KE00C	Ceramic	0.0018μF	50V ±10%	1
C09	CM8 2 3500 K00SV	Mylar	0.082μF	50V ±10%	1
C10	CD2 2 5100 0001V	Electrolytic	2.2μF	10V	1
C11	CD4 7 5100 0001V	Electrolytic	4.7μF	10V	1
C12	CC1 0 1500 KE00C	Ceramic	100pF	50V ±10%	1
C13	CD2 2 7100 0001V	Electrolytic	220μF	10V	1
C14	CD2 2 5500 0002V	Electrolytic	2.2μF	50V	1
C15	CC3 3 2500 KE00C	Ceramic	0.0033μF	50V ±10%	1
C16	CC4 7 1500 KE00C	Ceramic	470pF	50V ±10%	1
C17	CD2 2 663A 0002V	Electrolytic	22μF	6.3V	1
C18	CM6 8 3500 K00SV	Mylar	0.068μF	50V ±10%	1
C19	CD4 7 6100 0001V	Electrolytic	47μF	10V	1
C20	CI1 0 3250 KE00C	Boundary	0.01μF	25V ±10%	1
C21	CD2 2 7100 0001V	Electrolytic	220μF	10V	1
C22	CD1 0 7100 0001V	Electrolytic	100μF	10V	1
C23	CD4 7 4500 0002V	Electrolytic	0.47μF	50V	1
C24	CD2 2 663A 0002V	Electrolytic	22μF	6.3V	1
C25	CD4 7 6100 0002V	Electrolytic	47μF	10V	1
C26	CC4 7 3500 ZG00C	Ceramic	0.047μF	50V +80,-20%	1
C27	CC4 7 3500 ZG00C	Ceramic	0.047μF	50V +80,-20%	1
C28	CI2 2 3500 KE00C	Boundary	0.022μF	50V ±10%	1
C29	CI2 2 3500 KE00C	Boundary	0.022μF	50V ±10%	1
C30	CD2 2 8160 0001V	Electrolytic	2200μF	16V	1
C31	CD1 0 6100 0002V	Electrolytic	10μF	10V	1
R01	RP2 2 3121 JH000	Carbon	22kΩ	1/8W ±5%	1
R02	RP4 7 2121 JH000	Carbon	4.7kΩ	1/8W ±5%	1
R03	RP2 2 2121 JH000	Carbon	2.2kΩ	1/8W ±5%	1
R04	RP1 0 5121 JH000	Carbon	1MΩ	1/8W ±5%	1
R05	RP4 7 3121 JH000	Carbon	47kΩ	1/8W ±5%	1
R06	RP1 5 3121 JH000	Carbon	15kΩ	1/8W ±5%	1
R07	RP4 7 0121 JH000	Carbon	47Ω	1/8W ±5%	1
R08	RP3 3 3121 JH000	Carbon	33kΩ	1/8W ±5%	1
R09	RP3 3 3121 JH000	Carbon	33kΩ	1/8W ±5%	1
R10	RP1 0 2121 JH000	Carbon	1kΩ	1/8W ±5%	1
R11	RP2 2 1121 JH000	Carbon	220Ω	1/8W ±5%	1
R12	RD3 3 2251 JH000	Carbon	3.3kΩ	1/4W ±5%	1
R13	RP1 0 2121 JH000	Carbon	1kΩ	1/8W ±5%	1
R14	RP2 2 3121 JH000	Carbon	22kΩ	1/8W ±5%	1
R15	RP1 8 4121 JH000	Carbon	180kΩ	1/8W ±5%	1
R16	RP1 0 4121 JH000	Carbon	100kΩ	1/8W ±5%	1
R17	RP4 7 2121 JH000	Carbon	4.7kΩ	1/8W ±5%	1
R18	RP2 2 2121 JH000	Carbon	2.2kΩ	1/8W ±5%	1
R19	RP2 2 2121 JH000	Carbon	2.2kΩ	1/8W ±5%	1
R20	RP3 9 3121 JH000	Carbon	39kΩ	1/8W ±5%	1
R21	RP1 0 0121 JH000	Carbon	10Ω	1/8W ±5%	1
R22	RP3 9 2121 JH000	Carbon	3.9kΩ	1/8W ±5%	1
R23	RP1 0 0121 JH000	Carbon	10Ω	1/8W ±5%	1
R24	RP1 0 1121 JH000	Carbon	100Ω	1/8W ±5%	1
R25	RP1 0 3121 JH000	Carbon	10kΩ	1/8W ±5%	1
R26	RP6 8 2121 JH000	Carbon	6.8kΩ	1/8W ±5%	1
R27	RP4 7 3121 JH000	Carbon	47kΩ	1/8W ±5%	1
R28	RP1 0 2121 JH000	Carbon	1kΩ	1/8W ±5%	1
R29	RP6 8 2121 JH000	Carbon	6.8kΩ	1/8W ±5%	1
R30	RP2 7 2121 JH000	Carbon	2.7kΩ	1/8W ±5%	1
R31	RP4 7 2121 JH000	Carbon	4.7kΩ	1/8W ±5%	1
R32	RP2 2 2121 JH000	Carbon	2.2kΩ	1/8W ±5%	1
R33	RP1 0 2121 JH000	Carbon	1kΩ	1/8W ±5%	1
R34	RP5 6 1121 JH000	Carbon	560Ω	1/8W ±5%	1
R35	RP5 6 1121 JH000	Carbon	560Ω	1/8W ±5%	1
R36	RP3 0 1121 JH000	Carbon	300Ω	1/8W ±5%	1
R37	RP1 2 2121 JH000	Carbon	1.2kΩ	1/8W ±5%	1
R38	RP3 9 2121 JH000	Carbon	3.9kΩ	1/8W ±5%	1
R39	RP3 3 2121 JH000	Carbon	3.3kΩ	1/8W ±5%	1
R40	RP5 6 2121 JH000	Carbon	5.6kΩ	1/8W ±5%	1
R41	RP2 2 2121 JH000	Carbon	2.2kΩ	1/8W ±5%	1
R42	RP2 2 2121 JH000	Carbon	2.2kΩ	1/8W ±5%	1
R43	RP1 0 2121 JH000	Carbon	1kΩ	1/8W ±5%	1
	LED P.C.B. ASSY				
PCB2	141 0 1939 07620	LED P.C.B. Assy			1
D08	4 2029 72720	LED, SLP 181 B (ADSS)			1
D09	4 2029 72720	LED, SLP 181 B (Record)			1

NOTE:
1. Parts order must contain Model Number, Part Number and Description.
2. Ordering quantity of screws and resistors must be multiple of 10 pcs.

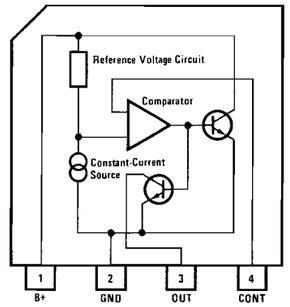
IC & TRANSISTOR LEAD IDENTIFICATION

TRANSISTOR	FRONT VIEW	BOTTOM VIEW
2SB598 2SC536 2SC1571		
TERMINAL NAME		
B → BASE C → COLLECTOR E → EMITTER		

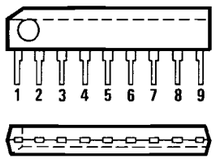
LA5511 FRONT/BOTTOM VIEWS



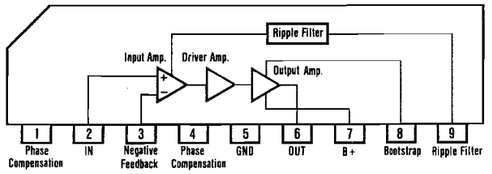
LA5511 BLOCK DIAGRAM



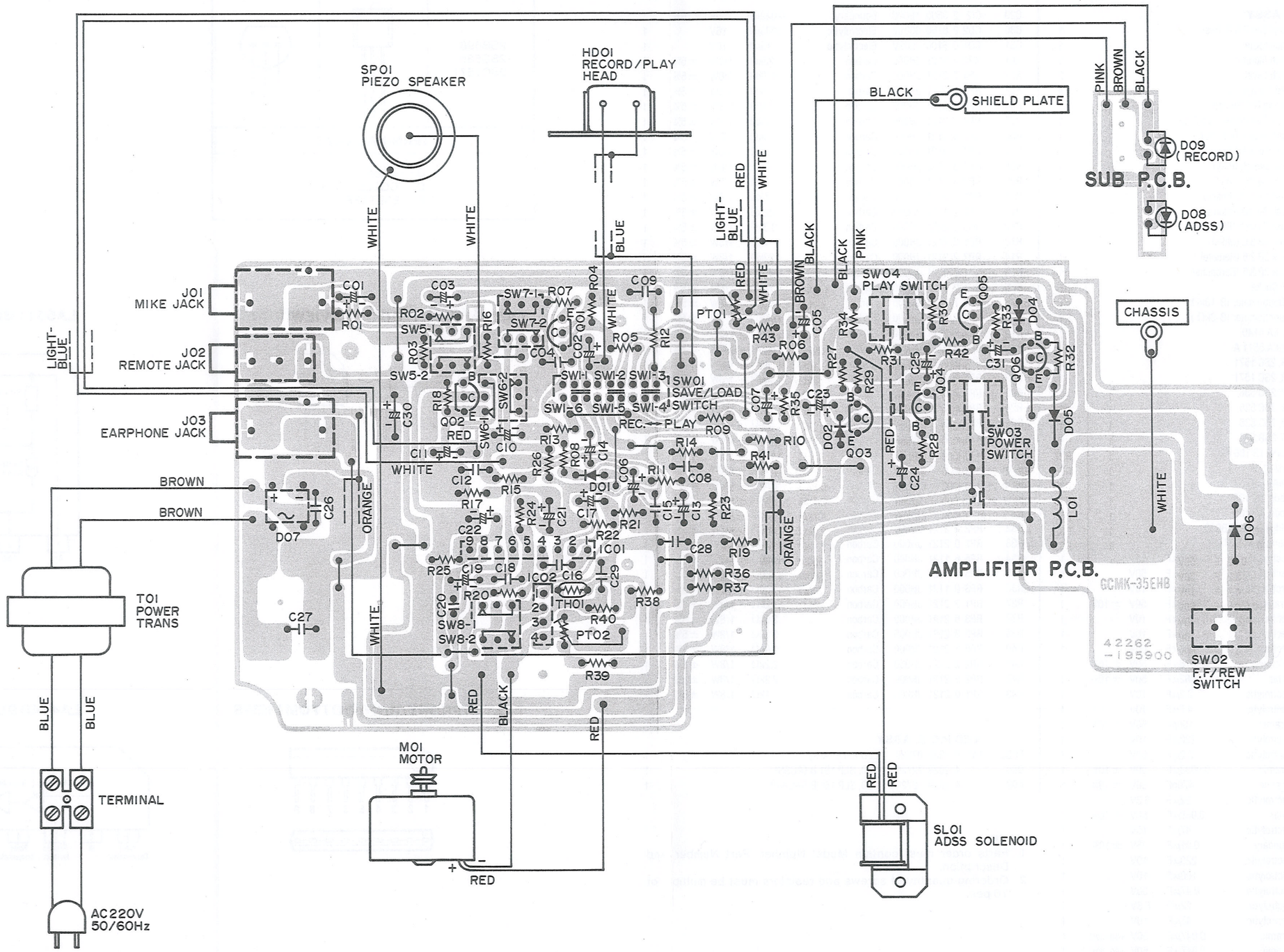
LA4140 FRONT/BOTTOM VIEWS



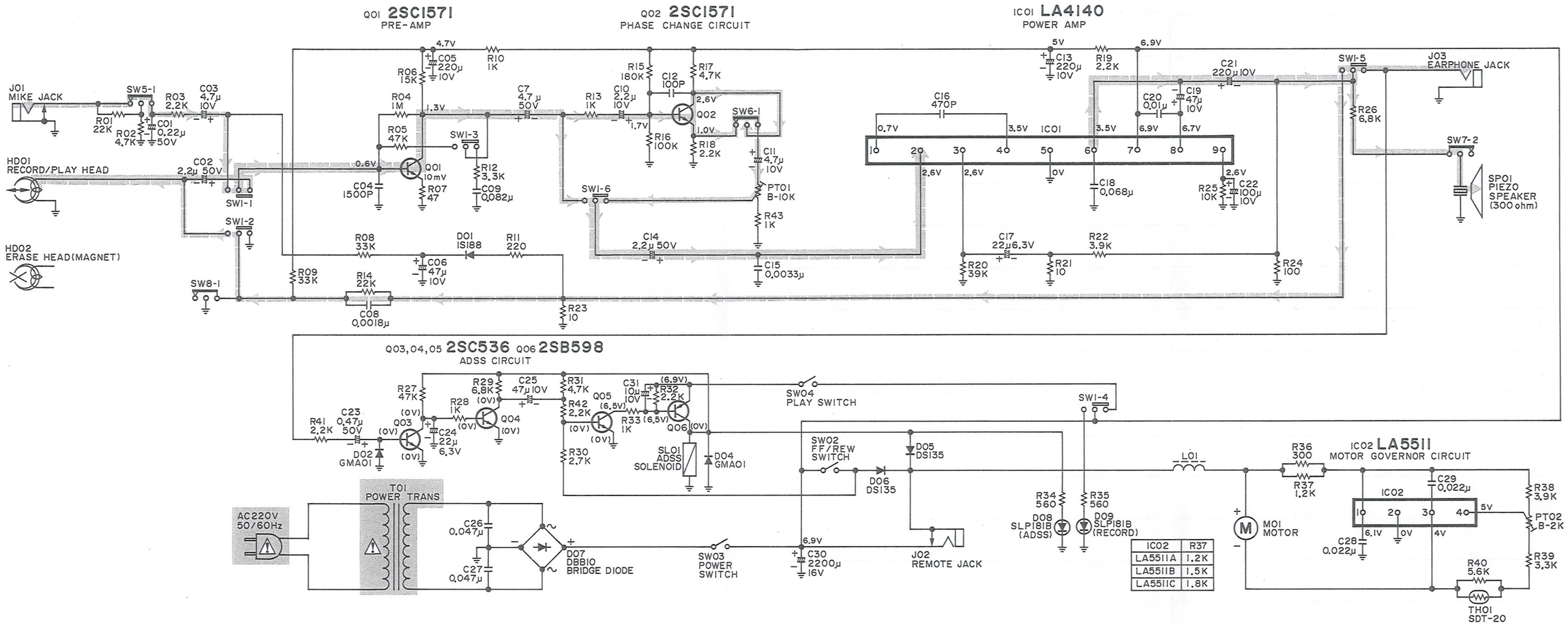
LA4140 BLOCK DIAGRAM



P.C.BOARD & WIRING DIAGRAM



SCHEMATIC DIAGRAM



Signal flow of **LOAD**

Signal flow of **SAVE**

No.	Name	Position
SW01	SAVE/LOAD Switch	LOAD
SW02	F.F/REW Switch	OFF
SW03	Power Switch	OFF
SW04	Play Switch	OFF
SW05	ATT Switch	OFF
SW06	Phase Switch	Normal
SW07	Monitor Switch	OFF
SW08	REC Mute Switch	OFF

PRODUCT SAFETY NOTICE

Each precaution in this manual should be followed during servicing. Components identified with the IEC symbol ⚠ in the parts list and the schematic diagram designate components in which safety can be of special significance. When replacing a component identified with ⚠, use only the replacement parts designated, or parts with the same ratings of resistance, wattage or voltage that are designated in the parts list in this manual. Leakage-current or resistance measurements must be made to determine that exposed parts are acceptably insulated from the supply circuit before returning the product to the customer.

NOTE:
Each terminal voltage on the Schematic Diagram indicates that the unit is in the loading mode. The voltage of bracket ( ) indicates that the unit was in the ADSS mode.

MEMO

SANYO ELECTRIC TRADING CO., LTD.
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